

REMARKS

Applicant has reviewed not only the arguments advanced against the rejected claims but also the previous art cited during the prosecution and now replaced by the newly cited *Fujita* (U.S. Patent No. 5,930,450).

From this prospective, applicant respectfully submits that the Office Action has inadvertently taken an unreasonable broad construction of our claims, such as in Claim 47, Lines 5-10, as follows:

a graphics stream including a data packet and a control packet,

the data packet including graphics data and a decode time stamp and a first presentation time stamp, the decode time stamp indicating a start time of a process for decoding of the graphics data, the first presentation time stamp indicating an end time of the process,

The above claim language is supported in our specification as follows:

[0007] the data packet has a time stamp whose value indicates a decoding time of the graphics data, and

[0008] the control packet has a time stamp whose value indicates a time at which the graphics data, after being decoded, is displayed combined with the video stream.

[0009] The period in which graphics is decoded is indicated by the time stamp of the packet storing the graphics, and display of the graphics is defined by the value of the time stamp assigned to corresponding control information. Therefore in the present invention, "state of already decoded but not yet displayed", in other words, a state in which decompressed graphics is buffered, is defined on the reproduction timeline.

[0010] By defining such a buffering period, it becomes possible to avoid concentration of an enormous amount of decoding load to one point. In addition, if the use of the hardware resource for decoding simultaneously contends other processing, buffering period can be provided so as to relocate the graphics decoding period, thereby avoiding such contention. (underline added)

Thus, the Office Action has misconstrued decode time stamp and the first presentation time stamp as set forth in our current claims and specification. In defining an invention, a difficulty arises in using a two-dimensional verbal definition to represent a three-dimensional invention. To provide protection to an inventor and notification to the public, a proper interpretation of terms utilized in the claims must be adhered to in order to enable an appropriate evaluation of the invention and its scope relative to cited prior art.

Not only should the concept of the invention be found in the prior art, but further, any cited structural elements in a prior art reference should be performing the same function with the same technical understanding to a person of ordinary skill in the field as the invention claims at issue. Indeed, MPEP § 2111 states:

The Patent and Trademark Office (“PTO”) determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364[, 70 USPQ2d 1827] (Fed. Cir. 2004). (emphasis added).

Our inventors have provided improved memory management in a crowded technical field as follows:

[0012] So as to solve this problem, it is desirable to have a construction in which the control information includes type information that indicates a memory management start, the time stamp of the control packet is a presentation time stamp, and the control packet further includes a decode time stamp whose value indicates a point of a reproduction timeline of the digital stream, which corresponds to the memory management start, and a time at which the control information is read to a memory.

[0013] According to this construction, a memory management start is indicated by a decode time stamp of a packet storing control information. Therefore, by referring to the decode time stamp, it becomes possible to know on which point of the reproduction timeline each buffer for the decoder model should be flashed. If the flash point is considered as a starting point of memory management, it is easy to grasp the chronological

occupancy transition of the buffer that stores control information, the buffer that stores graphics before being decoded, and the buffer that stores graphics after being decoded. By changing the value of this decode time stamp, it is possible to adjust the chronological transition of the state of the buffers. According to such adjustment, it becomes possible to avoid buffer overflow at the reproduction apparatus. Therefore, it becomes easy to implement hardware/software at the development stage of reproduction apparatus.

The Office Action has relied upon the *Fujita* reference to reject each claim under 35 U.S.C. §102 with a reliance upon Column 4, Lines 17-20, as follows:

...the data packs containing packets of reproduction data including at least one of audio data, video data and sub-picture data, the time information of that data unit which includes a sub-picture consisting of a playback start time and playback stop time;

Note, there is no mention of a “decode time stamp” nor an end of a process for decoding. Rather, *Fujita* only teaches a delayed playback start and playback stop for a sub-picture to facilitate a language teaching aid.

In essence, *Fujita* taught a solution to a problem recognized with simply using the MPEG 2 system layer, for setting a transfer start time and a playback start time. The problem was as follows at Column 1, Lines 38-43.

For educational purposes, such as learning languages, for example, main picture data used as video data may present questions to users, while sub-picture data superimposed on the picture may give answers to the users. In this case, it is significant to show answers after, and not before or during the time questions are given.

As noted in the Summary of the Invention, Column 1, Lines 45-52 the solution was defined as follows:

Accordingly, it is a primary object of the present invention to provide a recording medium on which various types of data, such as main picture data, audio data and sub-picture data, constructed in a reproducible manner, are recorded in such a way that the sub-picture data can be reproduced after a predetermined time delay with respect to the main picture data.

*Fujita* taught four different embodiments of this invention, none of which addressed a first presentation time stamp to indicate an end of the process of decoding the graphic data, nor did they teach or rely upon a decode time stamp as utilized in our present invention. In each of the embodiments there was an intentional delay from a presentation of an initial frame with a video image and an audible word so that the viewer could be presented with a word or phrase in a desired language, and then after a perceptible delay, a sub-picture could present the word or meaning of the word as shown, for example, in the graphic illustrations of Figures 51A through 56C.

Thus, *Fujita* taught imposing a particular time delay in each of the different embodiments, to permit a listener to contemplate and comprehend the meaning of the foreign word, wherein the word would then be subsequently visualized by a sub-picture below the video image. This time delay was associated with an expected comprehension period on the part of the user, and not for improving any technical performance nor correlating decoding and avoiding an overload on a decoder.

In fact, in a third embodiment described starting in Column 29, Lines 16-25. A menu would be placed on the screen so that the user could actually subjectively set a delay time of three seconds before the sub-picture would then be displayed as follows:

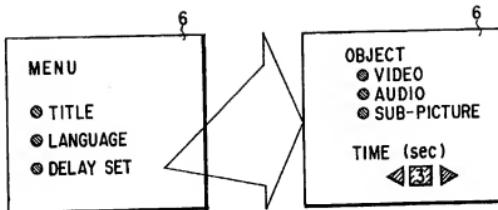


FIG. 47A

FIG. 47B

According to the present invention, the first presentation time stamp of the data packet indicates an end time of a process for decoding the graphics data, and the second presentation time stamp of the control packet indicates a presentation time of the graphics data. Hence, the present invention allows defining, on a reproduction time axis of the digital stream, a state where the graphics data has already been decoded but is not yet reproduced. This state occurs in a time period between the time indicated by the first presentation time stamp of the data packet and the time indicated by the second presentation time stamp of the control packet. By defining such a time period in which the graphics data has already been decoded but is not yet reproduced on the reproduction time axis of the digital stream, we achieve the advantages of Paragraph [0013] above.

In other words, by defining the “state of already decoded but not yet displayed” on the reproduction time axis of the digital stream to be reproduced, it becomes possible to avoid concentration of an enormous amount of decoding load to one point. Furthermore, we have amended each of the pending claims to newly recite a video decoder, a video plane and an adder. This amendment clarifies that the graphics data and the video data stored in the data packet are

combined. Consequently, the technical significance of the first presentation time stamp and the second presentation time stamp is further clarified.

In contrast, *Fujita* (U.S. Patent No. 5,930,450) describes control on reproduction of sub-pictures in DVD-Video. According to *Fujita*, the reproduction start and reproduction end of a sub-picture are defined by the commands (STA DSP) and (STP DSP), respectively.

Column 20, Lines 23 to 31 of *Fujita* reads, “The command (STA DSP) designates the display start time for sub-picture data, and is described by an offset PTS from PTS described in a sub-picture packet which includes a sub-picture unit header (start PTS). The command (STP DSP) designates the display stop time for sub-picture data, and is described by the offset PTS from PTS described in a sub-picture packet which includes a sub-picture unit header (stop PTS).”

It is apparent from Column 20, Lines 32 to 34 of *Fujita* that “the start PTS and stop PTS are delayed by arbitrary predetermined times from those of main picture data and audio data which are reproduced in the same time slot.” As the start PTS and stop PTS are set in this manner, reproduction of a sub-picture is delayed for a predetermined period of time with respect to reproduction of a main picture (Column 1, Lines 46 to 52). The start PTS and stop PTS for Mainz the reproduction start time of a sub picture pertaining to *Fujita* is stored in a sub-Picture Packet. Even if the sub-Picture packet is equivalent to the data packet, *Fujita* does not define the reproduction start by PTS of a control packet, which is separate from the data packet, as in the present invention.

In addition, although *Fujita* defines the reproduction start and reproduction end by means of start PTS and stop PTS as described above and thus allows defining, on a reproduction time axis of the digital stream, a time period in which reproduction of the sub-picture should be

continued, the structure of the reproduction apparatus according to *Fujita* is not capable of defining, on the reproduction time axis of the digital stream, the state where the graphics data has already been decoded but is not yet reproduced. This understanding is supported by the internal structure of the reproduction apparatus illustrated in FIG. 40 of *Fujita*.

As indicated in Column 21, line 59 to Column 22, line 11 of *Fujita*, the sub-picture decoder section 62 that decodes a sub-picture comprises an STC timer 62a, registers 62b and 62c, comparators 62d and 62e, and a decoder 62f. The SCR set by the buffer control/STC control section 57 is stored in the STC timer 62a and the time therein is updated by a clock. The register 62b retains the start PTS for sub-picture data which is set by the buffer control/STC control section 57. The register 62c retains the stop PTS for sub-picture data which is set by the buffer control/STC control section 57. The comparator 62d compares the STC in the STC timer 62a with the start PTS in the register 62b to check if they match with each other. The comparator 62e compares the STC in the STC timer 62a with the stop PTS in the register 62c to check if they match with each other. The decoder 62f starts decoding the sub-picture data input from the sub-picture buffer section 63 in accordance with the output of the comparator 62d when there is a match, and outputs the decoding result to the mixing section 64 in accordance with the output of the comparator 62d when there is a match.

As indicated above, the sub picture decoder section 62 of *Fujita* starts decoding at the time indicated by the start PTS of the sub picture packet, and outputs the result of decoding to the mixing section 64 immediately when the STC of the STC timer 62a and the start PTS of the register 62b match. It is therefore evident that the processing of *Fujita* is performed under the precondition “decode time = reproduction time.” Accordingly, *Fujita* does not allow defining

both of the decode end time and the reproduction start time on the reproduction time axis of the digital stream.

Moreover, in order to define the “state of already decoded but not yet displayed” on the reproduction time axis of the digital stream, it is necessary to provide a buffer (object buffer 15) for temporarily storing the graphics data obtained as a result of decoding, in addition to a graphics plane for combining and outputting decompressed graphics data and video of the video stream, as shown in FIG. 26 of the present application.

Without such an object buffer, the graphics decoder has no choice but to write graphics data that is currently subjected to a decoding process to the graphics plane, which might result in display of such graphics data that is in the middle of the decoding process.

According to the reproduction apparatus of *Fujita*, after the system processor section 54 and the buffer control/STC control section 57 distribute the sub-picture data of the sub-picture pack 90 to the sub-picture decoder section 62 via the sub-picture buffer section 63, the video data decoded by the video decoder section 58 and the sub-picture data decoded by the sub-picture decoder section 62 are mixed by the mixing section 64. The reproduction apparatus of *Fujita* does not seem to include any structural elements equivalent to the object buffer and graphics plane. Thus, the reproduction apparatus of *Fujita* is not capable of buffering the decompressed graphics data that is not yet reproduced.

In conclusion, as with *Murase* and *Kikuchi*, *Fujita* describes DVD-Video and a reproduction apparatus for the same. In order to achieve reproduction control compatible with reproduction of DVD-Video, the reproduction apparatus of *Fujita* requires that the recording medium record thereon data having a similar data structure to those described in *Murase* and *Kikuchi*, and needs to perform reproduction control similar to those described in *Murase* and

*Kikuchi*. In view of compatibility of DVD-Video, it is impossible that the present invention be described in *Fujita* but not described in *Murase* and *Kikuchi*. As *Fujita* fails to describe characteristic inventive matters of the present invention, namely the first presentation time stamp of the data packet and the second presentation time stamp of the control packet, novelty and non-obviousness of the present invention should not be rejected in view of *Fujita*.

The inventions pertaining to the reproduction method of Claim 48, the recording medium of Claim 49, the recording apparatus of Claim 50 and the recording method of Claim 51 belong to different categories of the present invention, but include the same technical matters corresponding to technical characteristics of the present invention and therefore contribute to the state of the art in the same manner as the present invention. Accordingly, as with the present invention, novelty and non-obviousness of the inventions of Claims 48, 49, 50 and 51 should not be rejected in view of the invention of *Fujita*.

Applicant believes that the case is now in condition for allowance and requests an early notification of the same.

If the Examiner believes a telephone interview will help further the prosecution of the case, the undersigned attorney can be contacted at the listed phone number.

Very truly yours,

**SNELL & WILMER L.L.P.**



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